

SOUTHWARD MIGRATION AT NGULIA, TSAVO, KENYA 1979/80

G.C. Backhurst & D.J. Pearson

This is the fourth one-season account of autumn Palaearctic migration at Ngulia and covers the 1979/80 season although, in fact, no visits were made to the site in early 1980. The 1978/79 season was dealt with by Backhurst & Pearson 1979.

Migration studies at Ngulia Safari Lodge between 20 October and 27 December 1979 involved 15 ornithologists, including six experienced ringers. The three periods of cover were timed to coincide with suitable moon conditions (see Pearson & Backhurst 1976). A record number of 13 206 Palaearctic birds was ringed; this was achieved by the fortunate coincidence of many misty nights and higher than usual numbers of ringers and helpers. Fig. 1 shows the total number of birds ringed each autumn season since 1969, while Table 1 is a list of the species ringed, with their scientific names.

METHODS

For the first five seasons of the Ngulia study, catching techniques fell into two categories: picking up live birds which had entered the Lodge building at night, and the setting of mist-nets just south of the Lodge immediately after first light to catch birds which had been resting around the Lodge during darkness. The picking up of birds by hand inside the building is a slow and inefficient method, while netting from dawn south of the Lodge is most productive only after large numbers of birds have been grounded at night.

In the autumn of 1974 netting at night was begun, using an 18m net across the Lodge verandah; the same technique was used the following season. This method was a great improvement and enabled many birds to be caught which would have otherwise flown in, and out, of the Lodge. The next step was taken in the autumn of 1976, when nets were set at night outside the Lodge, immediately to the north, in a north-south line. Outdoor night-netting has been employed each season since then, using a maximum of two 18m nets. The great advantage of this technique is that, under light mist conditions, birds may be caught as they fly in to 'investigate' the lights; such birds would not, we feel, be grounded under these conditions, and therefore would not be available for catching after dawn. Under more severe mist/rain conditions, the outside net(s) will catch very quickly and efficiently - often having to be closed for periods to reduce the size of the catch to manageable proportions. Birds are still caught by hand within the Lodge and netting after dawn south of the Lodge continues, but the majority of the birds ringed are caught at night outside the Lodge.

ACCOUNT OF THE SEASON

The three periods of cover during the 1979 autumn are dealt with separately below.

20-31 October

The Lodge was manned on 20, 23, and 26-31 October. The 20th was a clear night when no birds were seen. No netting was attempted, and only two Palaearctic passerines (an Olivaceous Warbler and a Spotted Flycatcher) were seen in the netting area.

On 23rd, 30 min of low mist from 04:50 resulted in about 15 birds being seen round the lights, of which four were caught (two Spotted Flycatchers, a Sprosser and a Whitethroat); more Spotted Flycatchers were heard. Four 18m nets in the bush immediately south of the Lodge caught another four migrants

Scopus 4: 14-20, March 1980

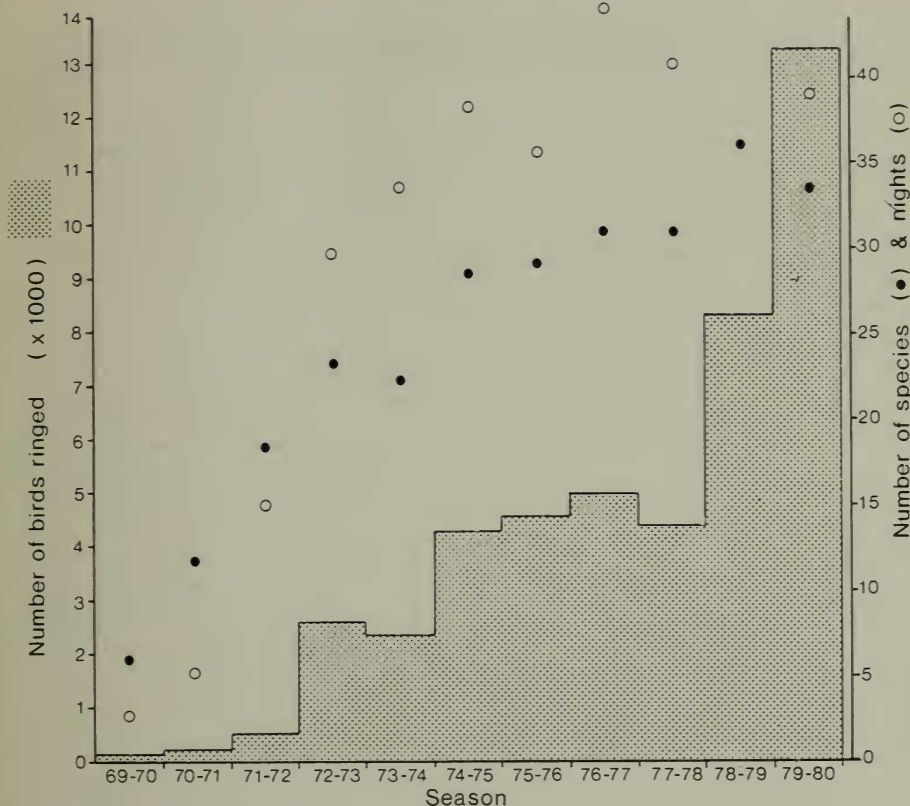


Fig. 1 Histogram showing the number of Palaearctic migrants ringed, number of species, and number of nights of cover at Ngulia Safari Lodge each October-mid February from 1969 to 1980

at dawn, including the earliest Marsh Warbler recorded at the site to date. On 26th, light mist came down at 03:00 and remained until just before dawn. In this period considerable numbers of migrants were seen and 109 were caught in two 18 m nets. The dominant species was the Spotted Flycatcher (53¹), followed by Whitethroat (28), Willow Warbler (9) and Sprosser (5). A single 18 m net in the bush added a further 19 birds, including nine Marsh and one Reed Warbler. This one misty night (which was unfortunately followed by five clear, birdless nights), underlined the relatively early timing of Spotted Flycatcher movements across Tsavo. This species accounted for 43 per cent of the day's total and, although a further 154 were ringed later (mainly in mid November), it never again formed more than a minor component of total catches. Several other 'early' species (see Backhurst & Pearson 1979) were caught on

¹ unless otherwise stated, numbers refer to birds ringed.

26th October but, surprisingly, only one Rufous Bush Chat.

14-29 November

The Lodge was manned continuously, and the period accounted for almost 82 per cent of the season's ringing total. Night-netting accounted for 9119 migrants, on 13 of the 16 nights involved, while a further 1677 were caught after dawn in the bush.

Light mist for 2½h from midnight on 14th produced birds round the lights, but clear skies after 02:30 allowed the majority to depart. The 219 birds ringed were almost all caught at night with Marsh Warbler, Whitethroat and Sprosser well represented (60, 57, 45), followed by Red-backed Shrike (19) and Eurasian Nightjar (14). The next night (15th) was misty from 1½h before midnight, and one to two 18m nets were operated continuously until dawn. Whitethroat was still dominant (341), but it was a remarkable night for Eurasian Nightjars, no less than 42 being ringed. Shrikes too were plentiful (Red-backed 35, Red-tailed 21), and the season's first Eurasian Rollers were ringed. The night was also notable in producing the first-ever control at Ngulia of a foreign-ringed bird: a Marsh Warbler which had been ringed as an 'f.g.' at Ražice, Czechoslovakia on 7 August 1977. The large (808) number of birds caught at night precluded any later bush netting.

The next four nights were all misty, and with up to eight personnel involved, produced an unprecedented series of overall daily ringing totals: 1009, 1201, 1016 and 983. These four nights were virtually devoid of rain; numbers of birds in the bush were never very high, and the great majority were caught at night. Numbers of Eurasian Nightjars declined rapidly (17, 20, 1, 0) but shrikes (201 in all) reached their peak, and Spotted Flycatchers continued in good numbers (32, 35, 13, 14). Although single River Warblers were ringed on 14th and 15th, they became more numerous during these four nights when the total rose to 52, while the first Garden Warblers were caught on 17th. Marsh Warbler and Whitethroat continued as dominant birds, but with large daily variations in their relative numbers: 178 v. 407, 390 v. 355, 497 v. 229 and 636 v. 155 (Marsh Warbler v. Whitethroat ringing totals). These four nights also produced good numbers of some minor species; for example, four more Eurasian Rollers, the season's only Corncrake and Golden Oriole (both on 17th), 30 Olive-tree Warblers, 145 Rufous Bush Chats, 30 Nightingales and 18 Rock Thrushes. In addition, the 19th was notable for the second Czechoslovakian-ringed Marsh Warbler, a bird which had been ringed in its first year at Zahradky on 30 July 1976, and for the only retrap from an earlier year: another Marsh Warbler originally ringed at Ngulia as a first-year bird on 23 December 1976. Both these controls were caught and released at night.

The nights of 20th and 21st were mainly clear, but light rain shortly before dawn on 22nd brought a few birds down and 222 were ringed. The night of 23rd was misty for 3½h before dawn; 557 birds were caught (mainly at night) and again, only a few hundreds remained in the bush at dawn.

The evening of 23rd was cloudy with some rain. Birds were seen at 21:00 and became numerous as mist came down to the trees an hour later. Catching started at 22:20 with 27m of net, and continued all night until dawn. The night's total of 1078, together with a further 374 in the bush next morning, comprised a daily ringing record for Ngulia. Marsh Warbler was dominant (791) followed by Whitethroat (353), and Sprosser a poor third (101). River Warbler (48) was much in evidence, as was Willow Warbler (36). *Hippolais* species were well represented, with five Upcher's, five Olivaceous and no less than a record 21 Olive-tree Warblers. The 17 Basra Reed Warblers ringed were noteworthy, as was a young male Little Bittern of the nominate race, caught by hand in the building. The last was a new bird for Ngulia although examples of the African race *payesii* have been recorded previously. This was the first night with

TABLE 1

Numbers of Palaearctic night migrants ringed at Ngulia Safari Lodge between October and February in the years 1969-1980

Species	1979/80	%*	1969/80
Little Bittern <i>Ixobrychus minutus</i>	2	-	2
Corncrake <i>Crex crex</i>	1	-	6
Scops Owl <i>Otus scops</i>	1	-	1
Eurasian Nightjar <i>Caprimulgus europaeus</i>	106	505	162
Eurasian Roller <i>Coracias garrulus</i>	10	700	22
Eurasian Swallow <i>Hirundo rustica</i> (at night)	20	237	79
Golden Oriole <i>Oriolus oriolus</i>	1	100	9
Rufous Bush Chat <i>Cercotrichas galactotes</i>	221	502	541
Iranian <i>Irania gutturalis</i>	271	284	950
Sprosser <i>Luscinia luscinia</i>	1780	188	8524
Nightingale <i>L. megarhynchos</i>	72	202	322
Rock Thrush <i>Monticola saxatilis</i>	27	450	70
Isabelline Wheatear <i>Oenanthe isabellina</i>	6	93	51
Northern Wheatear <i>O. oenanthe</i>	11	171	56
Pied Wheatear <i>O. pleschanka</i>	4	122	27
Great Reed Warbler <i>Acrocephalus arundinaceus</i>	6	280	21
Basra Reed Warbler <i>A. griseldis</i>	76	208	334
Marsh Warbler <i>A. palustris</i>	5126	374	14 879
Sedge Warbler <i>A. schoenobaenus</i>	8	170	51
Reed Warbler <i>A. scirpaceus</i>	11	193	52
Upcher's Warbler <i>Hippolais languida</i>	28	117	198
Olive-tree Warbler <i>H. olivetorum</i>	77	430	205
Olivaceous Warbler <i>H. pallida</i>	81	346	247
River Warbler <i>Locustella fluviatilis</i>	380	215	1644
Willow Warbler <i>Phylloscopus trochilus</i>	229	305	759
Blackcap <i>Sylvia atricapilla</i>	1	16	45
Garden Warbler <i>S. borin</i>	40	87	366
Whitethroat <i>S. communis</i>	3930	302	13 165
Barred Warbler <i>S. nisoria</i>	81	182	396
Spotted Flycatcher <i>Muscicapa striata</i>	209	968	360
Tree Pipit <i>Anthus trivialis</i>	4	234	16
Red-backed Shrike <i>Lanius collurio</i>	197	347	600
Red-tailed Shrike <i>L. isabellinus</i>	187	507	502
Hybrid <i>collurioisabellinus</i>	2	-	4
Total ringed	13 206		44 686

* The 1979/80 total expressed as a percentage of the 1972/79 mean for each species

Totals of species ringed in previous seasons but not in 1979/80 are as follows: Eleonora's Falcon *Falco eleonora* 1, Spotted Crane *Porzana porzana* 1, Eurasian Cuckoo *Cuculus canorus* 2, Lesser Cuckoo *C. poliocephalus* 1, Sand Martin *Riparia riparia* 5, Redstart *Phoenicurus phoenicurus* 1, Whinchat *Saxicola rubetra* 2, Icterine Warbler *Hippolais icterina* 1, Savi's Warbler *Locustella luscinoides* 1, Wood Warbler *Phylloscopus sibilatrix* 1, and Yellow Wagtail *Motacilla flava* 3.

frequent heavy showers as well as mist, and this was reflected in the large number of birds grounded in the bush at dawn (>10 000).

The next three nights were all misty, with very many birds attracted to the lights. The catch of 1307 on 25th (1132 at night) involved primarily White-throats (479), and Marsh Warblers (406), with Sprosser a good third at 261

(the season's highest total for this last species; cf. 373 on 29 November 1978). Marsh Warbler regained dominant place in a catch of 1219 the following day, but the highlight was the record total of 105 River Warblers ringed. Despite failure of the easternmost light on 27th, 643 birds were ringed. Mist was especially low and dense, and the fall at dawn larger than usual; 240 birds caught after dawn represented the second largest bush figure of the season. Marsh Warbler was again dominant (357), but River Warbler (18) surprisingly scarce after the previous day; new to Ngulia was a Palaearctic Scops Owl netted at 03:30. The last two nights of the period were completely clear and no netting was done.

13-27 December

These 15 days accounted for just over 17 per cent of the season's ringing total. Most nights were misty and surprisingly high numbers of birds were still on the move. Fewer personnel were present which, to some extent, affected numbers ringed. Marsh Warbler, Whitethroat and Sprosser continued as the main species (in that order); Sprossers were unusually numerous for so late in the season, with an overall total of 328 for the period. Olive-tree Warbler, as usual at this time, was not recorded; other usual species occurred, but with percentage contributions to catches often varying widely from day to day. On 13th, 285 birds ringed included a record 42 Iranias; there were also five Rufous Bush Chats on this day, single Eurasian Nightjar and Spotted Flycatcher, and two Tree Pipits. The 20th provided the largest fall of the period (614 ringed) with 363 Marsh and eight Basra Reed Warblers, and the second nominate Little Bittern (again a young male) netted at night.

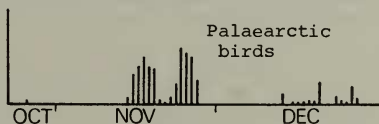
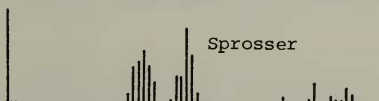
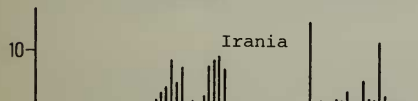
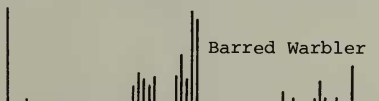
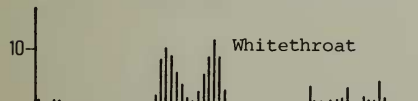
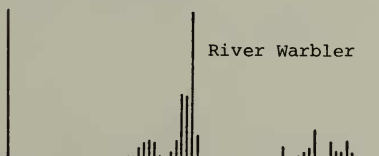
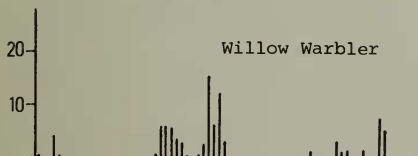
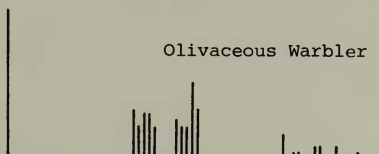
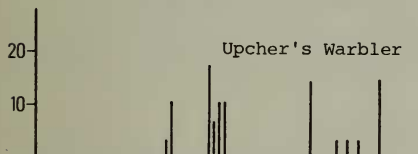
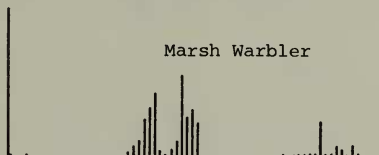
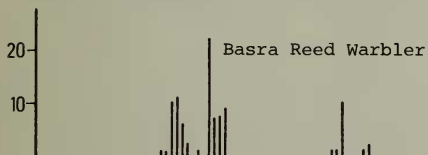
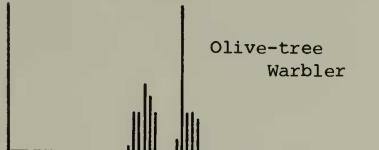
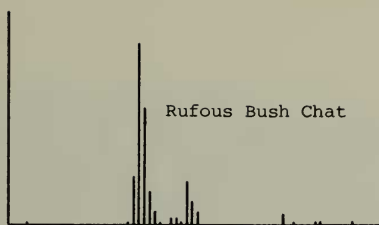
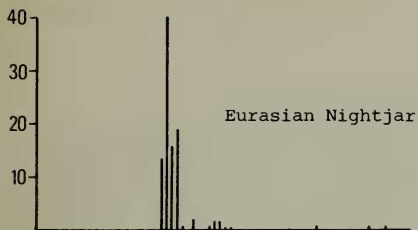
On Christmas night catching started with two 18m nets when the mist appeared at 23:15, and continued at a brisk pace, forcing the two operators to take the nets down at 04:30 to enable the bulk of the accumulated birds to be processed. Daytime netting resulted in 61 birds ringed, giving a combined day/night total of 445, exceptionally high for so late in the year. Whitethroat was dominant with Marsh Warbler next most numerous (115) and a high (74) number of Sprossers. Other species were still moving in substantial numbers, and 31 Iranias, 18 Willow Warblers and 14 Rivers were caught. The last netting-night of the season (27th) produced only 2h of mist, which never descended below tree-top level; 158 birds were caught (night and day) including 35 Sprossers and a late Eurasian Nightjar.

COMPARISON WITH OTHER YEARS

Each year's recorded autumn migration at Ngulia differs from the previous season's in several ways. Differences are sometimes attributable to different date coverage, in turn determined by the moon's phases. Thus, for example, if late November and early December fall in a full moon period, the peak of the River Warbler passage is likely to be missed. Weather, though, is the most usual cause of recorded season-to-season differences in species' abundance. Misty conditions in late October are rare, so that birds migrating at this time are seldom grounded, and therefore not caught. In the one substantial October catch this season the Spotted Flycatcher was shown to be dominant; this has not been so convincingly demonstrated previously, although often suspected on the basis of visual observations elsewhere in the Park.

Differences in real timing of migration of individual species undoubtedly occur, but these are often difficult to demonstrate because of moon and weather differences from season to season.

Fig. 2 opposite. Daily catches of the 17 major species of Palaearctic migrants ringed at Ngulia Safari Lodge from late October to late December 1979, expressed as percentages of the season's total catch for each species.



OCT

NOV

DEC

OCT

NOV

DEC

THE VALUE OF NGULIA IN THE FUTURE

The lights of Ngulia Safari Lodge, coupled with the topography of the site, have shown convincingly that vast numbers of Palaearctic migrants move south in eastern Africa several months after they have left their northern breeding areas (Pearson & Backhurst 1976). In addition to revealing the identity of the main species, a number of less common birds have been caught at the site, often providing considerable extension of range information for the species concerned. Most seasons have thrown up records in this category and, no doubt, future seasons will provide more.

It could be argued that catching at Ngulia is unlikely to provide many new data, save for records of rare and unusual species from time to time. In some ways this is so although it ignores one important aspect of the ringing of large numbers of birds - that of recoveries. Even after over 70 years of Old World ringing, the migration routes and winter quarters of all but a few species remain unknown to man. Ngulia ringing has already provided 17 long-distance recoveries and many more can be expected from 21 000 ringed in the last two seasons. As has been mentioned before (Backhurst 1971), ringing in the Ethiopian region for recoveries in the Palaearctic produces better results for most species than the reverse. The usual restraint operating in Africa with migrant warblers and thrushes is the difficulty of catching enough of them. This is not so at Ngulia. On many nights the number of birds which can be caught is determined almost solely by the number of ringers and helpers present. It seems to us that, in the future, a determined effort should be made at this site to ring as many birds as possible, with the prime aim of getting as many recoveries as possible, both to the north and to the south.

A logical extension of the Ngulia autumn programme would be the investigation of other misty hills in Kenya, to determine the breadth of the migration front, and to look for differences in species composition, migration timing and even (by recoveries), breeding origin; a start has been made in this regard (*Nilolauus* in prep.). Similar studies elsewhere in Africa, especially to the south of Kenya, should provide a valuable complement to the work at Ngulia.

ACKNOWLEDGEMENTS

Once again we would like to thank Mr Bill Woodley, the Warden of Tsavo National Park, for allowing us to net and ring at the Lodge. The Lodge Manager, Mr Roger Chambers and his wife Jan gave us every assistance: without their help nothing could have been achieved; we cannot thank them enough for all they did to make our stay at the Lodge a success. A larger than normal number of ornithologists took part this season; these are listed below with (in brackets) the number of nights each spent at the Lodge: GCB (33), Mrs A.M. Forbes-Watson (27), DJP (13), P. Jennings (12), G. Nikolaus (10), Miss M. Raguschat (10), Mrs D.E.G. Backhurst (4), D.A. & Mrs M. Turner (3), P.L. Britton (2), M. Coverdale (2), A. Lewis (2), R.D. Moore (2), A.E. Butterworth (1) and J.D. Gerhart (1). GCB thanks the Frank M. Chapman Memorial Fund for financial assistance which, incidentally, has been used to buy all the rings used this season, and for which all ringers are grateful.

REFERENCES

- BACKHURST, G.C. 1971. East African Bird Ringing Report 1969-1970. *Journal of the East Africa Natural History Society and National Museum* 123: 1-14.
- _____ & PEARSON, D.J. 1979. Southward migration at Ngulia, Tsavo, Kenya 1978/79. *Scopus* 3: 19-25.
- PEARSON, D.J. & BACKHURST, G.C. 1976. The southward migration of Palaearctic birds over Ngulia, Kenya. *Ibis* 118: 78-105.
- G.C. Backhurst, Box 24702, Nairobi and D.J. Pearson, Box 30197, Nairobi.

(Received 10 January 1980)